

Remarks

This is in response to the Office Action mailed on September 3, 2003. Claim 11 has been canceled without prejudice or disclaimer. Claims 10, 12, 13, 18-20, 23, and 24 have been editorially amended. No new matter has been added. Claims 1-10 and 12-25 remain pending. Reconsideration and allowance are respectfully requested, in view of the following remarks.

I. Claim Rejections - 35 U.S.C. § 101

Claims 10-25 were rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter. Specifically, the rejection states that claims 10-25 claim structures in contact with or implanted within the body, amounting to inferential recitation of the body. This rejection is respectfully traversed.

However, in the interest of moving this application into condition for allowance, claims 10, 12, 13, 20, 23, and 24 have been amended in a non-limiting manner to address the rejection. Reconsideration and allowance of claims 10-25 are respectfully requested.

II. Claim Rejections - 35 U.S.C. § 112

Claims 6-9, 11, 18, and 19 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. This rejection is respectfully traversed.

Regarding claim 6, the term "nearer" has been replaced with "adjacent."

Claim 11 has been canceled without prejudice or disclaimer.

Regarding claims 18 and 19, it is respectfully suggested that these claims are sufficiently definite to satisfy section 112, second paragraph. The rejection states that it is unclear as to what structure completes the claimed functions of claim 18 and 19. Claim 18 recites that the plurality of closely-spaced electrodes are stimulated at approximately the same instant, while claim 19 recites that the plurality of closely-spaced electrodes are stimulated at different instances. Claim 10, from which both claims 18 and 19 indirectly depend, recites an apparatus for resynchronization including a cardiac rhythm management device and a lead coupled at a first end to the cardiac rhythm management device and at a second end to the linear source. It is respectfully suggested that this recitation provides sufficient structure to make claims 18 and 19 definite.

Reconsideration and allowance of claims 6-9, 18, and 19 are respectfully requested.

III. Claim Rejections - 35 U.S.C. § 102

Before these rejections are specifically addressed, it may be helpful to explore the different therapies applied to address various heart abnormalities. When a patient exhibits bradycardia, or a slow heart rate, a pacemaker is typically employed to stimulate the heart at regular intervals. Likewise, when a patient exhibits periods of tachycardia or fibrillation, or increased heart rate, a defibrillator is typically used to shock the heart to thereby restore a normal rhythm.

In contrast, a patient may exhibit a decrease in hemodynamic efficiency that is unrelated to the rate at which the patient's heart is beating. For example, a patient may have congestive heart failure or left bundle branch block, which can result in the electrical conduction patterns of the left ventricle being altered or impaired. These abnormalities can, in turn, cause the interventricular septum of the heart to contract before the left ventricular free wall, creating asynchronous left ventricular contraction and causing impaired hemodynamic function. To address these types of abnormalities, a cardiac resynchronization device is typically used to resynchronize contraction of the heart. Therefore, a cardiac resynchronization device is configured to resynchronize contraction of a patient's heart, rather than alter the patient's heart rate. Application, page 2, lines 1-16.

Claim 1 recites a method for resynchronization of a heart, including steps of:

- (a) coupling a linear source to a cardiac rhythm management device via a lead;
- (b) coupling the linear source to a surface of the heart; and
- (c) resynchronizing a contraction of the heart through linear excitation of the surface.

Therefore, resynchronization of the heart can be advantageously accomplished through linear excitation of the surface of the heart.

A. Molina

Claims 1-6, 10-12, 14-18, 20, and 23-25 were rejected under 35 U.S.C. § 102(b) as being anticipated by Molina, U.S. Patent No. 5,897,586. This rejection is respectfully traversed.

Molina discloses an implantable defibrillator lead with a linear assembly of sensors and coils. Molina, abstract. As noted above, claim 1 recites a method for resynchronization of a heart including resynchronizing a contraction of the heart through linear excitation of the surface

of the heart. Since Molina discloses defibrillation and fails to disclose or suggest resynchronization, Molina fails to anticipate claim 1.

Claims 2-6 depend from claim 1 and further distinguish over Molina. For example, claim 5 recites coupling a second linear source to a surface of a right ventricle of the heart. Molina fails to disclose or suggest placement of one or more linear sources as recited by claims 2-6.

Claim 10, and claims 12, 14-18, and 20 that depend therefrom, are directed to an apparatus to resynchronize a heart including a linear source. Although not identical in scope to claim 1, claim 10 includes limitations similar to those described above with respect to claim 1 and should therefore be allowable for at least similar reasons.

Claims 23 and 24, as well as claim 25 that depends from claim 24, include limitations similar to those described above with respect to claim 1 and should therefore be allowable for at least similar reasons.

Reconsideration and allowance of claims 1-6, 10, 12, 14-18, 20, and 23-25 are therefore respectfully requested in view of the above remarks.

B. Knisley

Claims 1-14, 17-22, 24, and 25 were rejected under 35 U.S.C. § 102(b) as being anticipated by Knisley, U.S. Patent No. 5,824,028. This rejection is respectfully traversed.

Knisley discloses a line electrode used for cardiac pacing, defibrillation, and termination of tachycardia. Knisley, abstract. Knisley fails to disclose or suggest resynchronization and therefore is inapplicable to independent claims 1, 10, and 24.

Claims 2-9, 12-14, 17-22, and 25, which all depend from claims 1, 10, and 24, further distinguish over Knisley. For example, Knisley fails to disclose or suggestion placement of the first linear source or a second linear source as recited by claims 2-7, 12, 13, and 20-22. Further, Knisley fails to suggest configuring a delay before sending a second electrical stimulus to a second linear source so as to approximate normal apex-to-base contraction, as recited by claim 9.

Reconsideration and allowance of claims 1-10, 12-14, 17-22, 24, and 25 are therefore respectfully requested.

IV. Specification


The specification was objected to as failing to provide proper antecedent basis for the subject matter of claim 16. The specification has been amended to provide the necessary antecedent basis for claim 16. Reconsideration and removal of the objection are respectfully requested.

V. Conclusion

In view of the above amendments and remarks, all claims are in condition for allowance. Favorable reconsideration in the form of a Notice of Allowance is respectfully requested. Please contact the undersigned attorney with any questions regarding this application.

Respectfully submitted,
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